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| --- | --- |
| Coronary vasopasm | Cocaine (NE reuptake inhibitor)--↑ NE in synaptic cleft  Sumatriptan (5-HT1B/1D agonist) Inhibits trigeminal nerve activation; prevents vasoactive peptide release (sub P, calcitonin gene related peptide CGRP). Induces vasoconstriction  Ergot alkaloids--vasoconstrictors (prolonged vasospasm (ischemic pain and gangrene of feet, legs, hands and arms.) Also dementia with hallucinations and uterine SM muscle contraction 🡪 abortion. Act at α adrenergic receptors, DA receptors, and Serotonin (5-HT) receptors (5-HT1A, 5-HT1D, 5-HT2). ***Amine ergot alkaloids*** for effects on uterus. Rapid GI absorption and metabolism. Strong and prolonged contractions of uterus. Lower doses. Primarily used **postpartum** to assist involution and decrease hemorrhage. ***Peptide ergot alkaloids (ERGOTAMINE and DIHYDROERGOTAMINE (DHE))*** important in tx of hyperprolactinemia and migraine (best if given during prodrome). Agonist at presynaptic 5-HT1D receptors (decrease cAMP) on trigeminal nerves innervating cranial blood vessels, inhibiting release of inflammatory/vasodilator peptides (CGRP, substance P). Agonist at cranial vascular SM 5-HT1D receptors |
| Cutaneous Flushing | Vancomycin—inhibits cell wall synthesis by binding D=ala-D-ala of gram + bacteria. C. diff (give it orally) and MRSA  Adenosine—Rapidly acting antiarrhythmic. Inhibit AC --↓ cAMP 🡪 ↑ K+ out of cells—hyperpol cell and ↓ Ica. DOC in dz/abolishing SVT. Very short acting. Also associated with chest pain and hypotension. Effects blocked by theophylline and caffeine.  Niacin--↓ LDL, ↑↑ HDL, ↓ TG—inhibits lipolysis in adipose tissue; ↓ VLDL secretion into circulation 🡪 ↓ LDL.; ↓ flushing by taking aspirin. Also causes hyperglycemia (acanthosis nigricans) and Hyperuricemia (exacerbates gout)  Ca2+ Channel Blockers—amlodipine & nifedipine (↓ afterload), Class IV antiarrythmics. Verapamil, diltiazem (↓ HR and contractility). ↓ SA node firing and slow AV node conduction. ↑ ERP, ↑ PR interval. Used to preven SVTs. Can cause AV block. Also causes peripheral edema!! |
| Dilated Cardiomyopathy | Doxorubicin/ Daunorubicin — Generates free radicals. Noncovalently intercalates DNA🡪 breaks in DNA 🡪 ↓ replication. Can cause dilated cardiomyopathy use dexrazoxane (iron chelating agent) to help prevent cardiotox. |
| Torsades de pointes | Class III (sotalol)—Class III. K Channel Blocker. ↑ AP duration, up ERP, ↑ QT. Torsades de pointes and excessive β block. It is also a β blocker (class II properties). ↑ PR interval (β blocker action)  Class 1A (quinidine) —Class 1A. Na Channel Blocker--↑ AP duration, ↑ ERP, ↑ QT (🡪 tordases de pointes). Both atrial and ventricular arrhythmias, esp reentrant and ectopic SVT and VT. |
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| Agranulocytosis (acute, severe and ↓ in WBC count)—neutropenia being the most important  Treat leukopenia with FILGRASTIM—it is a G-CSF. Especially used when chemo patients become leukopenic | Clozapine— Atypical antipsychotic. Inhibition of 5-HT2 (some D2) receptors. Schizo refractory to traditional therapy. SE: granulocytosis; MONITOR WBCS, SEIZURES, ↑ salivation (highest of them all)  Carbamazepine—↑ Na channel inactivation. Induces P450 (autoinduces its own metabolism)--↓ efficacy of oral contraceptives. First line for simple, complex and tonic clonic seizures. 1st line for trigeminal neuralgia too. It is also used to manic depression. Agranulocytosis, aplastic anemia, Steven Johnson Sx., Diplopia, ataxia, liver tox, teratogenesis (neural tube defect and craniofacial abnormalities), SIADH, hypernatremia,pancreatitis, nystagmus  Colchicine—Treats gout. Inhibits MT polymerization by binding tubulin. Inhibits M phase. Also inhibits Neutrophil motility and activity🡪 anti inflamm effect.  Propylthiouracil—Drug used to treat hyperthyroidism. Inhibits thryoperoxidase (normally oxidizes iodide 🡪 iodine). Inhibits 5’ deiodinase which converts T4🡪 T3  Methimazole-- Inhibits thryoperoxidase (normally oxidizes iodide 🡪 iodine)  Dapsone—similar to sulfa drugs. PABA analog—inhibits dihydropteroate synthase. Given for leprosy and PCP. ↑ O2 stress on cells. |
| Aplastic anemia (BM damage🡪 ↓ RBC, ↓ WBC, ↓ platelets)—dry BM tap | Chloramphenicol— Blocks peptidyltransferase at 50S. Meningitis, H. influ, N. meningitides, Strep pneumo  Benzene  NSAIDs— NSAIDS (Also KETOPROFEN AND NAPROXEN and INDOMETHACIN AND ASPIRIN**.).** NSAIDs inhibit prostaglandin synthesis by inhibiting cyclooxygenase mediated conversion of arachidonic acid to PGH2. Salicylates also play role in NF-KB signaling in inflammatory cascade. OK in kids**.** Used for pain, fever, menstrual pain and inflammation OTC. Early stage (35-50mg/dL): CNS: tinnitus, hearing loss, vertigo, emesis (CTZ) resulting in fluid loss**.** Metabolic: uncouple mitochondrial ox phos->higher CO2 production, incr respiration and fluid loss. Mild-moderate tox (50-80 mg/dL)CNS: hyperventilation -> fluid loss, respiratory alkalosis, NaHCO3 excretion (more fluid loss)Metabolic: heat production by uncoupled mitochondria=hyperthermia, sweating=fluid loss. Glycolysis stimulated-> glycogen depletion and hypoglycemia. Higher CO2, lactate, pyruvate, acetoacetate = metabolic acidosis**.** Severe tox (110-160 mg/dL)CNS: less respiration = respiratory acidosis and then HCO3- depletion. Blood pH decrease and salicylate to brain -> coma. Lethal tox (>160mg/dL)Metabolic: hyperthermia/dehydration and deathKidney: renal failure and death  CNS: respiratory failure and death. Treat tox: reduce temp, analyze blood, treat dehydration/electrolyte imbalance, charcoal to minimize absorption. Maximize elimination by alkalinizing urine w/ NaHCO3 infusion  Propylthiouracil—Drug used to treat hyperthyroidism. Inhibits thryoperoxidase (normally oxidizes iodide 🡪 iodine). Inhibits 5’ deiodinase which converts T4🡪 T3  Methimazole-- Drug used to treat hyperthyroidism. Inhibits thryoperoxidase (normally oxidizes iodide 🡪 iodine) |
| Direct Coombs + Hemolytic Anemia | Methyldopa--α2 agonist  Penicillin |
| Gray baby Syndrome—b/c premature infants lack live UDP-glucouronyl transferse (conjugates bile—similar to Crigler Najjar Sx) | Chloramphenicol –Blocks peptidyltransferase at 50S. Meningitis, H. influ, N. meningitides, Strep pneumo |
| Hemolysis in G6PD-def patients | Isoniazid—↓ synthesis of mycolic acid. Bacterial catalase-peroxidase needed to activatate. Only agent used solo for Tb. Give vit B6 (pyridoxine)  Sulfonamides—PABA antimetabolites inhibit dihydropteroate synthase. SMX for UTI.  Primaquine  Aspirin— Irreversibly inhibits COX1 and COX2 by covalent acetylation. Platelets cannot synthesize new enzymes so lasts until new platelets are produced. ↑ BT, ↓ TXA2 (pro aggreg) and PG’s. No effect on PT or PTT. SE: Gastic ulcers, tinnitus, acute renal failure in chronic use, interstitial nephritis, upper GI bleeding, Reyes syndrome in children with viral infection). Overdose causes respiratory alkalosis (stimulation of respiratory center) and metabolic acidosis.  Ibuprofen—NSAIDS (Also KETOPROFEN AND NAPROXEN and INDOMETHACIN AND ASPIRIN**.).** NSAIDs inhibit prostaglandin synthesis by inhibiting cyclooxygenase mediated conversion of arachidonic acid to PGH2. Salicylates also play role in NF-KB signaling in inflammatory cascade. OK in kids**.** Used for pain, fever, menstrual pain and inflammation OTC. Early stage (35-50mg/dL): CNS: tinnitus, hearing loss, vertigo, emesis (CTZ) resulting in fluid loss**.** Metabolic: uncouple mitochondrial ox phos->higher CO2 production, incr respiration and fluid loss. Mild-moderate tox (50-80 mg/dL)CNS: hyperventilation -> fluid loss, respiratory alkalosis, NaHCO3 excretion (more fluid loss)Metabolic: heat production by uncoupled mitochondria=hyperthermia, sweating=fluid loss. Glycolysis stimulated-> glycogen depletion and hypoglycemia. Higher CO2, lactate, pyruvate, acetoacetate = metabolic acidosis**.** Severe tox (110-160 mg/dL)CNS: less respiration = respiratory acidosis and then HCO3- depletion. Blood pH decrease and salicylate to brain -> coma. Lethal tox (>160mg/dL)Metabolic: hyperthermia/dehydration and deathKidney: renal failure and death  CNS: respiratory failure and death. Treat tox: reduce temp, analyze blood, treat dehydration/electrolyte imbalance, charcoal to minimize absorption. Maximize elimination by alkalinizing urine w/ NaHCO3 infusion  Nitrofurantoin-- The drug works by damaging bacterial DNA, since its reduced form is highly reactive. This is made possible by the rapid reduction of nitrofurantoin inside the bacterial cell by flavoproteins (nitrofuran reductase) to multiple reactive intermediates that attack ribosomal proteins, DNA, respiration, pyruvate metabolism and other macromolecules within the cell |
| Megaloblastic anemia | Phenytoin—Anticonvulsant. ↑ Na channel inactivation--↑ refractory period and ↓ AP duration. It is also a Class IB antiarrhythmic (1B is Best post MI). Induces P450; ↓ efficacy of oral contraceptives and warfarin. It is also highly protein bound so can displace other medications from plasma proteins. First line for tonic clonic seizures. Prophylaxis for status epilepticus. For IV use give fosphenytoin. Nystagmus, diplopia, ataxia, sedation, GINGIVAL HYPERPLASIA, MEGALOBLASTIC ANEMIA (↓ folate abs) Cosmetic effects (acne, hirsuitism, coarse facial hair), generalized lymphadenopathy, teratogenesis (fetal hydantoin sx—cleft lip and palate), Steven Johnson Sx., osteopenia, SLE-LIKE SYNDROME (anti-histone Abs), hyper glycemia, hepatotoxic  Methotrexate-- Blocks DHFR to inhibit purine synthesis. Contraindicated in pregnancy! Toxicity offset w/Leucovorin or folate or folinic acid by increasing THF.  Sulfa drugs—Probenecid, Furosemide, Axetazolamide, Celecoxib, Thiazides, Sulfonamide antibiotics, Sulfasalazine, Sulonylureas |
| Thrombotic complications (DVT or PE) | OCP (estrogens--↑ ↑ in smokers) |
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| Cough | ACE Inhibitor—(Captopril, enalapril, and lisinopril)—Inhibit ACE🡪 ↓ AT II --↓ GFR (b/c AT II normally contracts efferent arteriole). Also ↓ aldo🡪 ↓ Na/H20 reabs (normally Na/H20 reab in exchange for secretion of K and H+) from collecting tubules.↑ Renin as a result of loss of negative feedback. ↑ bradykinin—potent vasodilator; can cause cough. 1st line defense for DM w/ renal disease. Tox: cough, angioedema, teratogen (renal malformations), Cr ↑ (b/c ↓ GFR), ↑ K, hypotension. Avoid in bilateral renal artery stenosis b/c ACEI will further ↓ GFR🡪 renal failure. |
| Pulmonary fibrosis | Bleomycin—Induces free radical formation which casuses breaks in DNA strands. SE: Pulmonary fibrosis, skin changes.  Amiodarone—Class III. K Channel Blocker. ↑ AP duration, ↑ ERP. ↑ QT interval. Pulmonary fibrosis (delayed interstitial pneumonitis), hepatotoxicity, hypothyroidism/hyperthyroidism (amiodarone is 40% iodine by wt), corneal depsotis, skin deposits (blue gray)🡪 photodermatitis, neurologic effects, constipation, CV effects (bradycardia, hart block, CHF)  Busulfan—Alkylates DNA. SE: Pulmonary fibrosis and hyperpigmentation. Used in CML and to ablate BM before BM transplant. |
|  |  |
| Pancreatitis | Azathioprine—prodrug for 6-MP. Purine analog🡪 ↓ de novo purine synthesis. Activated by HGPRT. Metabolized by XO (allopurinol ↑ tox) Other purine analogs—Fludarabine (CLL) and Cladribine (hairy cell leukemia—resistant to adenosine deaminase)  Sulfa drugs—Probenecid, Furosemide, Axetazolamide, Celecoxib, Thiazides, Sulfonamide antibiotics, Sulfasalazine, Sulonylureas  Valproic acid--↑ Na channel inactivation, ↑ GABA concentration, inhibits T-type Ca Channels. First line in tonic-clonic seizures and used in absence seizures. Used for myoclonus too and bipolar disorder and migraines. Teratogen (↓ folate abs—neural tube defects) and hepatotoxic (fatal), weight gain, ALOPECIA  Methyldopa--α2 agonist. Competes with DOPA and DA, NE, and EPI synthesis – produces Me-DA and Me-NE in brain**.** Me-NE is an alpha2 agonist that inhibits SNS outflow to vascular SM and heart**.** Also an α1 agonist, so does not block vasoconstriction or baroreflex completely.  Furosemide—Inhibits cotransport system NKCC2 channel in TAL. Abolishes hypertonicity of medulla, preventing concentration of urine. ↓ luminal positivity in TAL🡪 ↑ excretion of Ca and Mg. STIMULATES PGE release (🡪 vasodilatory effect on afferent arteriole🡪 ↑ RBF and ↑ GFR). Inhibited by NSAIDs so don't take with a loop diuretic or it ↓ its diuretic response. Use: edematous states (CHF, cirrhosis, nephrotic syndrome, pulmonary edema), HTN, hypercalcemia. SE: Ototox, hypoK, Dehydration, sulfa allergy, nephritis, gout.  Corticosteroids—Prednisone/Prednisolone. May trigger apoptosis. May even work on nondividing cells. Most common used glucocorticoid in cancer chemo. Also used for autoimmune dz to suppress immune system. SE: Cushing like symptoms; immunesuppression, cataracts, acne, osteoporosis, hypertension, peptic ulcers, hyperglycemia, psychosis.  Sulindac—NSAID. Prodrug converted to active sulfide in liver; undergoes enterohepatic cycling so actions last longer.  Tetracycline—inhibits 30S and prevents attachment of aminoacyl tRNA. Don't take with divalent cations b/c they inhibit absorption. Used for Lyme Dz, Rickettsia, Chlamydia, and Mycoplasma pneumo  Estrogen—All used for: Intractable Dysmenorrhea (not treated by NSAIDS, use progestin w/ it) , Hirsutism, Contraception, Menopause (ERT w/ progestins), Postmenopausal osteoporosis (estrogen + progestin; Second line drugs after bisphosphonates) , HRT (only for 5 years)  6-MP—(prodrug of this is azathioprine); Purine (thiol) analog🡪 ↓ de novo purine synthesis. Activated by HGPRT. Metabolized by XO (allopurinol ↑ tox); Other purine analogs—Fludarabine (CLL) and Cladribine (hairy cell leukemia—resistant to adenosine deaminase)  Pentamidine—PCP pneumonia tx.  5-ASA—aspirin. Irreversibly inhibits COX1 and COX2 by covalent acetylation. Platelets cannot synthesize new enzymes so lasts until new platelets are produced. ↑ BT, ↓ TXA2 (pro aggreg) and PG’s. No effect on PT or PTT. SE: Gastic ulcers, tinnitus, acute renal failure in chronic use, interstitial nephritis, upper GI bleeding, Reyes syndrome (Reye’s syndrome: hepatic and brain damage when kids take salicylates/aspirin when have influenza or chicken pox (mech unknown, so salicylates gen not used in kids) in children with viral infectio). Overdose causes respiratory alkalosis (stimulation of respiratory center) and metabolic acidosis.  Octreotide—Long acting somatostatin analog. Used to tx acute variceal bleeds b/c it ↓ splanchnic blood flow by inhibiting hormone responsible for splanchnic dilatation., acromegaly, VIPoma, and carcinoid tumors. |
| Acute cholestatis hepatitis, jaundice | Erythromycin—Inhibits protein synthese by blocking tanslocation by binding 23S rRNA of 50S subunit. Used for atypical pneumonias (mycoplasma, chlamydia, legionella), STDS (chlamydia) and gram + cocci. Inhibit P450 |
| Focal to massive hepatic necrosis | Halothane—Inhaled anesthetics. Myocardial depression, respiratory depression, n/v, ↑ cerebral blood flow (↓ metabolic demand), proconvulsant. Hepatotoxicity (HALOTHANE—can cause acute hepatitis symptoms—can lead to highly fulminant and rapid atrophy—shrunken liver) MALIGNANT HYPERTHERMIA (= hyperthermia, muscle rigidity, acidosis, HTN, hyperkalemia; ESPECIALLY HALOTHANE) for all but nitrous oxide (tx w/ Dantrolene)  Amanita phalloides (toxic mushrooms—inhibit mRNA)  Valproic acid--↑ Na channel inactivation, ↑ GABA concentration, inhibits T-type Ca Channels. First line in tonic-clonic seizures and used in absence seizures. Used for myoclonus too and bipolar disorder and migraines. Teratogen (↓ folate abs—neural tube defects) and hepatotoxic (fatal), weight gain, ALOPECIA  Acetaminophen—Reversible inhibits COX, mostly in CNS. Inactivated peripherally. Antifever, anti-pain, NOT ANTI INFLAMM. Used instead of aspirin to avoid Reye syndrome in children with viral infection. OD: hepatic necrosis; acetaminophen metabolite depletes glutathione and forms toxic tissue adducts in live. N-acetylcysteine is antidote—regenerates glutathione. |
| Hepatitis | Isoniazid--↓ synthesis of mycolic acid. Bacterial catalase-peroxidase needed to activatate. Only agent used solo for Tb. Give vit B6 (pyridoxine) |
| Pseudomembraneous colitis | Clindamycin—blocks peptide transfer (transpeptidation) at 50S. Used for Anaerobic infections (bacteroides fragilis, clostridium perfringens) in aspiration pneumonia or lung abscesses. (anaerobes above the diaphragm)  Ampicillin—Used for Listeria monocytogenes. Also H influenza, E coli, Proteus, Salmonella, Shigella enterococci. |
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| Adrenocortical insufficiency | Glucocorticoid withdrawal (HPA suppression)—Addisons like syndrome b/c atrophy of endogenous producing cortisol cells in the adrenal glands so need to taper off steroids to avoid adrenal insufficiency; Prednisone/Prednisolone. May trigger apoptosis. May even work on nondividing cells. Most common used glucocorticoid in cancer chemo. Also used for autoimmune dz to suppress immune system. SE: Cushing like symptoms (too much cortisol); immunosuppression, cataracts, acne, osteoporosis, hypertension, peptic ulcers, hyperglycemia, psychosis.  Etomidate —most cardiac stable IV anesthetic agent |
| Gynecomastia | Spironolactone—K sparing diuretic (along with eplerenone, triamterene, and amiloride but triamterene and amiloride work by blocking ENaC in CCT🡪 ↑ Na in lumen🡪 ↑ luminal postivitiy 🡪 unfavorable for secretion of K). Spironolactone and eplernone are competitive aldosterone receptor antagonists in CCT🡪 prevent apical membrane ↑ in ROMK channels🡪 ↓ K secretion. Used in hyperaldosteronisms (Conn syndrome), K depletion, CHF. Tox: Hyperkalemia (🡪 arrhythmias), endocrine effects w/ spironolactone—gynecomastia and ANTIANDROGENIC effects which makes it a good treatment in PCOS and hirsutism.  Digitalis— Digitalis works by inhibiting sodium-potassium ATPase. This results in an increased intracellular concentration of sodium ion and thus a decreased concentration gradient across the cell membrane. This increase in intracellular sodium makes the actions of the Na/Ca exchange pump unfavorable, thereby decreasing sodium influx and calcium efflux via this pump. This gradient-induced inhibition results in a higher cytoplasmic calcium concentration. The increased cytosolic calcium ion concentration results in increased calcium ion storage in the sarcoplasmic reticulum. Upon action potential (cardiac contraction), more calcium is released from the sarcoplasmic reticulum and this gives a positive inotropic. effect (higher contractility). Digitalis also has a vagal effect on the parasympathetic nervous system, and as such is used in re-entrant cardiac arrhythmias, and to slow the ventricular rate during atrial fibrillation  Cimetidine—H2 receptor antag🡪 ↓ H+ secretion by parietal cell in the stomach. Used for peptic ulcer, gastritis, and GERD. It also has antiandrogenic effects (prolactin release, gynecomastia, impotence, ↓ libido in males).; can cross BBB (confusion, dizziness, headaches) and can cross placenta. ↓ renal excretion of creatinine (ranitidine also does this)  Chronic Alcohol Use—liver digests estrogen so ↑ estrogen 🡪 ↑ SHBG 🡪 ↓ free testosterone 🡪 gynecomastia and testicular atrophy and spider angiomas.  Estrogens  Ketoconazole—inhibits testosterone synthesis. In fungi it inhibits ergosterol synthesis but inhibiting P450. Can cause liver dysfunction  Typical Antipsychotics (inhibit D2 receptors)—cause prolactinemia--Inhibiting DA receptors in the anterior pituitary (DA normally inhibits prolactin)  Haloperidol and everything that ends in –azine)  Risperidone (atypical antipsych—only one)—cause prolactinemia--Inhibiting DA receptors in the anterior pituitary (DA normally inhibits prolactin) |
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| Hot flashes | Tamoxifen—SERM. Agonist at endometrium (↑ risk of endometrial cancer) and bone but antagonist in breast. Used to treat ER + breast cancer and osteoporosis. Raloxifene has no agonist effect at endometrium so no ↑ risk for endometrial cancer.  Clomiphene—SERM. ↑ FSH and LH by inhibiting negative feedback on the hypothalamus. |
| Hyperglycemia | Niacin--↓ LDL, ↑↑ HDL, ↓ TG—inhibits lipolysis in adipose tissue; ↓ VLDL secretion into circulation 🡪 ↓ LDL.; ↓ flushing by taking aspirin. Also causes hyperglycemia (acanthosis nigricans) and Hyperuricemia (exacerbates gout)  Cyclosporine—Binds to cyclophilins. Complex blocks the differentiation and activation of T cell by inhibiting calcineurin🡪 preventing production of IL-2 and its receptor. Suppresses organ rejection and used in select autoimmune disorders. Nephrotox,HTN, hyperlipidemia, hyperglycemia, tremor, gingival hyperplasia, hirsutism  Tacrolimus—Similar to Cyclosporine but binds to FK-binding protein🡪 inhibition of calcineurin and ↓ secretion of IL-2 and other cytokines. Immunosupp in organ transplant rejection.  Protease Inhibitors  HCTZ—Thiazide diuretic. Inhibits NaCl reabs in early distal tubule🡪 ↓ diluting capacity of the nephron. ↓ Ca excretion. Used in HTN, CHF, idiopathic hypercalciuria, nephrogeni DI (b/c ↓ ECFV b/c ur not reabs NaCl and water 🡪 JG cells sense this so ↑ renin🡪 ↑ AT II 🡪 stimulation Na/H exchanger in PCT (largest % of reabs) 🡪 ↑ Na, H20 and HCO3- reabs (permits contraction alkalosis)🡪 ↓ fluid excretion/↓ urine output). SE: HypoK, metabolic alkalosis, ↓ Na, hypergly, hyperlipidemia, hyperuricemia, and hypercalcemia.  Corticosteroids—Prednisone/Prednisolone. May trigger apoptosis. May even work on nondividing cells. Most common used glucocorticoid in cancer chemo. Also used for autoimmune dz to suppress immune system. SE: Cushing like symptoms; immunesuppression, cataracts, acne, osteoporosis, hypertension, peptic ulcers, hyperglycemia, psychosis. |
| Hypothyroidism | Lithium-- lithium inhibits 5’-deiodinase which converts T4🡪 T3 peripherally  Amiodarone—Class III. K Channel Blocker. ↑ AP duration, ↑ ERP. ↑ QT interval. Pulmonary fibrosis (delayed interstitial pneumonitis), hepatotoxicity, hypothyroidism/hyperthyroidism (amiodarone is 40% iodine by wt), corneal depsotis, skin deposits (blue gray)🡪 photodermatitis, neurologic effects, constipation, CV effects (bradycardia, hart block, CHF)  Sulfonamides—PABA antimetabolites inhibit dihydropteroate synthase. SMX for UTI. |
| Musculoskeletal/CT |  |
| Fat redistribution | Glucocorticoids—Prednisone/Prednisolone. May trigger apoptosis. May even work on nondividing cells. Most common used glucocorticoid in cancer chemo. Also used for autoimmune dz to suppress immune system. SE: Cushing like symptoms; immunesuppression, cataracts, acne, osteoporosis, hypertension, peptic ulcers, hyperglycemia, psychosis.  Protease Inhibitors |
| Gingival Hyperplasia | Phenytoin—Anticonvulsant. ↑ Na channel inactivation--↑ refractory period and ↓ AP duration. It is also a Class IB antiarrhythmic (1B is Best post MI). Induces P450; ↓ efficacy of oral contraceptives and warfarin. It is also highly protein bound so can displace other medications from plasma proteins. First line for tonic clonic seizures. Prophylaxis for status epilepticus. For IV use give fosphenytoin. Nystagmus, diplopia, ataxia, sedation, GINGIVAL HYPERPLASIA, MEGALOBLASTIC ANEMIA (↓ folate abs) Cosmetic effects (acne, hirsuitism, coarse facial hair), generalized lymphadenopathy, teratogenesis (fetal hydantoin sx—cleft lip and palate), Steven Johnson Sx., osteopenia, SLE-LIKE SYNDROME (anti-histone Abs), hyper glycemia, hepatotoxic  Verapamil—Class IV. Ca channel blocker. ↓ HR and contractility. ↓ SA node firing and slow AV node conduction. ↑ ERP, ↑ PR interval. Used to prevent nodal SVTs. Can cause AV block. Also causes peripheral edema flushing and constiapation. !!  Cyclosporin A—Binds to cyclophilins. Complex blocks the differentiation and activation of T cell by inhibiting calcineurin🡪 preventing production of IL-2 and its receptor. Suppresses organ rejection and used in select autoimmune disorders. Nephrotox,HTN, hyperlipidemia, hyperglycemia, tremor, gingival hyperplasia, hirsutism.  Nifedipine –Ca2+ Channel Blockers—amlodipine & nifedipine; Work more on VSM 🡪 ↓ contraction🡪 vasodilation🡪 ↓ afterload. |
| Gout | Furosemides—Inhibits cotransport system NKCC2 channel in TAL. Abolishes hypertonicity of medulla, preventing concentration of urine. ↓ luminal positivity in TAL🡪 ↑ excretion of Ca and Mg. STIMULATES PGE release (🡪 vasodilatory effect on afferent arteriole🡪 ↑ RBF and ↑ GFR). Inhibited by NSAIDs so don't take with a loop diuretic or it ↓ its diuretic response. Use: edematous states (CHF, cirrhosis, nephrotic syndrome, pulmonary edema), HTN, hypercalcemia. SE: Ototox, hypoK, Dehydration, sulfa allergy, nephritis, gout.  Thiazides— Thiazide diuretic. Inhibits NaCl reabs in early distal tubule🡪 ↓ diluting capacity of the nephron. ↓ Ca excretion. Used in HTN, CHF, idiopathic hypercalciuria, nephrogeni DI (b/c ↓ ECFV b/c ur not reabs NaCl and water 🡪 JG cells sense this so ↑ renin🡪 ↑ AT II 🡪 stimulation Na/H exchanger in PCT (largest % of reabs) 🡪 ↑ Na, H20 and HCO3- reabs (permits contraction alkalosis)🡪 ↓ fluid excretion/↓ urine output). SE: HypoK, metabolic alkalosis, ↓ Na, hypergly, hyperlipidemia, hyperuricemia, and hypercalcemia.  Niacin--↓ LDL, ↑↑ HDL, ↓ TG—inhibits lipolysis in adipose tissue; ↓ VLDL secretion into circulation 🡪 ↓ LDL.; ↓ flushing by taking aspirin. Also causes hyperglycemia (acanthosis nigricans) and Hyperuricemia (exacerbates gout)  Cyclosporin—Binds to cyclophilins. Complex blocks the differentiation and activation of T cell by inhibiting calcineurin🡪 preventing production of IL-2 and its receptor. Suppresses organ rejection and used in select autoimmune disorders. Nephrotox,HTN, hyperlipidemia, hyperglycemia, tremor, gingival hyperplasia, hirsutism |
| Myopathies | Fibrates--↓ LDL, ↑ HDL, ↓↓ TG; Upregulate LPL via PPAR-α 🡪 ↑ TG clearance. Myositis, hepatotox, cholesteral gallstones (↑ hepatic chol synthesis). Inhibits P450.  Niacin--↓ LDL, ↑↑ HDL, ↓ TG—inhibits lipolysis in adipose tissue; ↓ VLDL secretion into circulation 🡪 ↓ LDL.; ↓ flushing by taking aspirin. Also causes hyperglycemia (acanthosis nigricans) and Hyperuricemia (exacerbates gout)  Colchicine—Treats gout. Inhibits MT polymerization by binding tubulin. Inhibits M phase. Also inhibits Neutrophil motility and activity🡪 anti inflamm effect.  Hydroxychloroquine  IFN-α  Penicillamine—chelates Cu in wilsons disease  Statins--↓↓↓ LDL, ↑ HDL, ↓ TG; Inhibit conversion of HMG-CoA to mevalonate (chol precursor)🡪 ↓ chol synthesis. ↑ LDL receptors 🡪 ↑ LDL uptake. Hepatox (↑ LFT), rhabdomyolysis w/in 3 months of starting therapy.  Glucocorticosteroids—Prednisone/Prednisolone. May trigger apoptosis. May even work on nondividing cells. Most common used glucocorticoid in cancer chemo. Also used for autoimmune dz to suppress immune system. SE: Cushing like symptoms; immunesuppression, cataracts, acne, osteoporosis, hypertension, peptic ulcers, hyperglycemia, psychosis. |
| Osteoporosis | Corticosteroids—Prednisone/Prednisolone. May trigger apoptosis. May even work on nondividing cells. Most common used glucocorticoid in cancer chemo. Also used for autoimmune dz to suppress immune system. SE: Cushing like symptoms; immunesuppression, cataracts, acne, osteoporosis, hypertension, peptic ulcers, hyperglycemia, psychosis.  Heparin—activates ATIII which inactivates thrombin and factor Xa involved in clotting. Heparin also has a binding site for thrombin allowing it to facilitate the inactivation of thrombin by bringing ATIII and thrombin together. Short half life. Immediate anticoag for PE and acute coronary syndrome, MI, DVT, elective surgery (hip/knee replacements). Used during preg b/c doesn't cross placenta. Follow PTT. Tox: Bleeding, HIT, osteoporosis, ANTIDOTE: Protamine sulfate (+ charge so bind – charged heparin). LMWH (enoxaparin—binds and activates antithrombin III and has some anti-Xa activity) Fondaparinux/Rivaroxaban—only anti-Xa activity. HIT= development of IgG Abs against heparin bound to PF4🡪 activated platelets🡪 thrombosis and thrombocytopenia. Use lepirudin/bivalirudin to tx HIT—they are derivatives of hirudin—inhibits thrombin (other direct thrombin inhibitors—argatroban) |
| Photosensitivity | Sulfonamides—PABA antimetabolites inhibit dihydropteroate synthase. SMX for UTI.  Amiodarone—Class III. K Channel Blocker. ↑ AP duration, ↑ ERP. ↑ QT interval. Pulmonary fibrosis (delayed interstitial pneumonitis), hepatotoxicity, hypothyroidism/hyperthyroidism (amiodarone is 40% iodine by wt), corneal depsotis, skin deposits (blue gray)🡪 photodermatitis, neurologic effects, constipation, CV effects (bradycardia, hart block, CHF)  Tetracycline—inhibits 30S and prevents attachment of aminoacyl tRNA. Don't take with divalent cations b/c they inhibit absorption. Used for Lyme Dz, Rickettsia, Chlamydia, and Mycoplasma pneumo |
| Stevens Johnson Syndrome | Penicillin  Ethosuximide—1st line defense for absence sezures. Blocks T-type Ca channels in the thalamus. Can cause Steven Johnson syndrome.  Carbamazepine—↑ Na channel inactivation. Induces P450 (autoinduces its own metabolism)--↓ efficacy of oral contraceptives. First line for simple, complex and tonic clonic seizures. 1st line for trigeminal neuralgia too. It is also used to manic depression. Agranulocytosis, aplastic anemia, Steven Johnson Sx., Diplopia, ataxia, liver tox, teratogenesis (neural tube defect and craniofacial abnormalities), SIADH, hypernatremia,pancreatitis, nystagmus  Sulfa drugs—Probenecid, Furosemide, Axetazolamide, Celecoxib, Thiazides, Sulfonamide antibiotics, Sulfasalazine, Sulonylureas  Lamotrigine— Blocks voltage gated Na channel and glutamate channels. STEVE IS A LAMO  Allopurinol—inhibits XO. ↓ formation of uric acid.  Phenytoin—Anticonvulsant. ↑ Na channel inactivation--↑ refractory period and ↓ AP duration. It is also a Class IB antiarrhythmic (1B is Best post MI). Induces P450; ↓ efficacy of oral contraceptives and warfarin. It is also highly protein bound so can displace other medications from plasma proteins. First line for tonic clonic seizures. Prophylaxis for status epilepticus. For IV use give fosphenytoin. Nystagmus, diplopia, ataxia, sedation, GINGIVAL HYPERPLASIA, MEGALOBLASTIC ANEMIA (↓ folate abs) Cosmetic effects (acne, hirsuitism, coarse facial hair), generalized lymphadenopathy, teratogenesis (fetal hydantoin sx—cleft lip and palate), Steven Johnson Sx., osteopenia, SLE-LIKE SYNDROME (anti-histone Abs), hyper glycemia, hepatotoxic  Phenobarbital—↑ GABAA action--↑ duration of Cl- channel opening. Induces P450. Acute Intermittent Porphyria—no photosensitivity just neuro sx (barbituates block ALA synthetase). Sedation, tolerance (cross tol w/ benzos and alcohol), dependence, CV and Respiratory depression.Withdrawal can mimick alcohol withdrawal. OD tx is supportive—alkalinization of urine helps too |
| SLE like syndrome (↑ risk in drugs that are acetylated in slow acetylators) | Hydralazine--↑ cGMP🡪 SM relax. Vasodilates arterioles > veins. ↓ afterload. First line in HTN in preg with methyldopa. Coadmin w/ β-blocker to ↓ reflex tachy  Isoniazid↓ synthesis of mycolic acid. Bacterial catalase-peroxidase needed to activatate. Only agent used solo for Tb. Give vit B6 (pyridoxine  Procainamide— Class 1A. Na Channel Blocker--↑ AP duration, ↑ ERP, ↑ QT (🡪 tordases de pointes). Both atrial and ventricular arrhythmias, esp reentrant and ectopic SVT and VT. SLE and delayed onset pleuritis.  Phenytoin—Anticonvulsant. ↑ Na channel inactivation--↑ refractory period and ↓ AP duration. It is also a Class IB antiarrhythmic (1B is Best post MI). Induces P450; ↓ efficacy of oral contraceptives and warfarin. It is also highly protein bound so can displace other medications from plasma proteins. First line for tonic clonic seizures. Prophylaxis for status epilepticus. For IV use give fosphenytoin. Nystagmus, diplopia, ataxia, sedation, GINGIVAL HYPERPLASIA, MEGALOBLASTIC ANEMIA (↓ folate abs) Cosmetic effects (acne, hirsuitism, coarse facial hair), generalized lymphadenopathy, teratogenesis (fetal hydantoin sx—cleft lip and palate), Steven Johnson Sx., osteopenia, SLE-LIKE SYNDROME (anti-histone Abs), hyper glycemia, hepatotoxic |
| Teeth | Tetracyclines—inhibits 30S and prevents attachment of aminoacyl tRNA. Don't take with divalent cations b/c they inhibit absorption. Used for Lyme Dz, Rickettsia, Chlamydia, and Mycoplasma pneumo |
| Tendonitis, tendon rupture, and cartilage damage | Fluoroquinolone—inhibits DNA gyrase (topoisomerase II and IV). Enter cells via porins Don't take with antacids. Used for Pseudomonas, Neisseria, gram – rods. |
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| Nephrogenic Diabetes Insipidus | Lithium-- by upcoupling of the vasopressin V2 receptors in the kidney—use thiazide diuretics to tx nephrogenic DI, use amiloride, a thiazide b/c it ↑ reabs of lithium which may lead to toxicity  Demeclocycline (tx for SIADH)—ADH antagonist; type of tetracycline. It acts as a diuretic in SIADH. |
| Fanconi’s Syndrome | Expired Tetracycline—inhibits 30S and prevents attachment of aminoacyl tRNA. Don't take with divalent cations b/c they inhibit absorption. Used for Lyme Dz, Rickettsia, Chlamydia, and Mycoplasma pneumo |
| Hemorrhagic Cystitis | Cyclophsphamide/ Ifofamide — Covalently cross links (interstrand) DNA at guanine N7. Requires activation by liver!. GIVE MENSA because it binds acrolein which is the toxic metabolite of this drug. Used to tx Wegners and and microscopic polyangitis (prevent by coadministering with MESNA) |
| Interstitial nephritis | Methicillin  NSAIDS—NSAIDS (Also KETOPROFEN AND NAPROXEN and INDOMETHACIN AND ASPIRIN**.).** NSAIDs inhibit prostaglandin synthesis by inhibiting cyclooxygenase mediated conversion of arachidonic acid to PGH2. Salicylates also play role in NF-KB signaling in inflammatory cascade. OK in kids**.** Used for pain, fever, menstrual pain and inflammation OTC. Early stage (35-50mg/dL): CNS: tinnitus, hearing loss, vertigo, emesis (CTZ) resulting in fluid loss**.** Metabolic: uncouple mitochondrial ox phos->higher CO2 production, incr respiration and fluid loss. Mild-moderate tox (50-80 mg/dL)CNS: hyperventilation -> fluid loss, respiratory alkalosis, NaHCO3 excretion (more fluid loss)Metabolic: heat production by uncoupled mitochondria=hyperthermia, sweating=fluid loss. Glycolysis stimulated-> glycogen depletion and hypoglycemia. Higher CO2, lactate, pyruvate, acetoacetate = metabolic acidosis**.** Severe tox (110-160 mg/dL)CNS: less respiration = respiratory acidosis and then HCO3- depletion. Blood pH decrease and salicylate to brain -> coma. Lethal tox (>160mg/dL)Metabolic: hyperthermia/dehydration and deathKidney: renal failure and death  CNS: respiratory failure and death. Treat tox: reduce temp, analyze blood, treat dehydration/electrolyte imbalance, charcoal to minimize absorption. Maximize elimination by alkalinizing urine w/ NaHCO3 infusion  Furosemide—Inhibits cotransport system NKCC2 channel in TAL. Abolishes hypertonicity of medulla, preventing concentration of urine. ↓ luminal positivity in TAL🡪 ↑ excretion of Ca and Mg. STIMULATES PGE release (🡪 vasodilatory effect on afferent arteriole🡪 ↑ RBF and ↑ GFR). Inhibited by NSAIDs so don't take with a loop diuretic or it ↓ its diuretic response. Use: edematous states (CHF, cirrhosis, nephrotic syndrome, pulmonary edema), HTN, hypercalcemia. SE: Ototox, hypoK, Dehydration, sulfa allergy, nephritis, gout. |
| SIADH | Carbamazepine—↑ Na channel inactivation. Induces P450 (autoinduces its own metabolism)--↓ efficacy of oral contraceptives. First line for simple, complex and tonic clonic seizures. 1st line for trigeminal neuralgia too. It is also used to manic depression. Agranulocytosis, aplastic anemia, Steven Johnson Sx., Diplopia, ataxia, liver tox, teratogenesis (neural tube defect and craniofacial abnormalities), SIADH, hypernatremia,pancreatitis, nystagmus  Cyclophosphamide—— Covalently cross links (interstrand) DNA at guanine N7. Requires activation by liver!. GIVE MENSA because it binds acrolein which is the toxic metabolite of this drug. Used to tx Wegners and and microscopic polyangitis (prevent by coadministering with MESNA) |
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| Cinchonism (tinnitus and headache, hearing loss, confusion and vision changes) | Quinidine—Class 1A. Na Channel Blocker--↑ AP duration, ↑ ERP, ↑ QT (🡪 tordases de pointes). Both atrial and ventricular arrhythmias, esp reentrant and ectopic SVT and VT.  Quinine—tx of malaria; now use chloroquine b/c ↓ side effects. |
| Parkinson-like syndrome (extrapyramidal symptoms)  parkinsonian like symptoms (because they are inhibiting DA receptors in the nigrostriatal pathway)—dystonia, rigidity, tremor, bradykinesias akathisia (motor restlessness), tardative dyskinesias; Tx of antipsychotic EPS= benztropine, amantadine, diphenhydramine (b/c of its anticholinergic action) | High potency typical Antipsychotics:  Haloperidol-- Inhibits D2 receptors High potency typical antipsychs (haloperidol and Fluphenazine) are likely to cause EPS and are weaker anticholinergic activity |
| Seizures | Isoniazid—↓ synthesis of mycolic acid. Bacterial catalase-peroxidase needed to activatate. Only agent used solo for Tb. Give vit B6 (pyridoxine)  Buproprion Antidepressant; Weak inhibitor of DA, 5-HT and NE reuptake  Imipenem/cilastatin—imipenem is a braod spectrum, β-lactamas resistant. Also administered w/ cilastatin (inhibits renal dehydropeptidase I so drug isn’t inactivated in renal tubules)  Tramadol— Very weak opioid agonist—also inhibits 5-HT and NE reuptake (WORKS ON MULTIPLE NT’S). Used for chronic pain. ↓ seizure threshold  Enflurane—Inhaled anesthetics. Myocardial depression, respiratory depression, n/v, ↑ cerebral blood flow (↓ metabolic demand), proconvulsant  Metoclopramide—D2 receptor ANTAGonist--↑ resting tone, contractility, LES tone and motiltity. Tx N/V, ↑ gastric emptying. Used for DM and post surgery gastroparesis. SE: ↑ parkinsonism effects. Restlessness, drowsiness, gatigue, depression , nausea, diarrhea. Drug interaction w/ digoxin and diabetic agents. Contraindicated in patients w/ small bowel obstruction and Parkinsons dz. |
| Tardive dyskinesia  tardative dyskinesia—inappropriate movement of the TONGUE, NECK, TRUNK AND LIMBS (associated with longterm use of DA antagonists) b/c long term DA receptor inhibition leads to an upregulation and supersensitivity of DA receptors there by leading to a DA overstimulation especially when antipsychotic has been discontinued | Typical Antipsychotics (inhibit D2 receptors)  Haloperidol  Chlorpromazine  Thioridazine  Fluphenazine  Pimozide  Metoclopramide—D2 receptor ANTAGonist--↑ resting tone, contractility, LES tone and motiltity. Tx N/V, ↑ gastric emptying. Used for DM and post surgery gastroparesis. SE: ↑ parkinsonism effects. Restlessness, drowsiness, gatigue, depression , nausea, diarrhea. Drug interaction w/ digoxin and diabetic agents. Contraindicated in patients w/ small bowel obstruction and Parkinsons dz. |
| Neuroleptic Malignant Syndrome  life threatning adverse effects of antipsychotic meds. Hyperthermia, rigidity, altered mental status, CV instability  Tx with dantrolene and bromocriptine | Typrical Antipsychotics (inhibit D2 receptors) |
| Serotonin Syndrome—neuromuscular excitation (hyperreflexia, clonus, myoclonus, and rigidity), ANS stimulation (hyperthermia. Tachycardia, diaphoresis, and tremor), altered mental status (agitation and confusion)  Tx wi/ CYPROHEPTADINE (5 HT2 RECEPTOR ANTAG) | SSRI (Fluoxetine, paroxetine, sertraline, citalopram—Flashbacks paralyze senior citizens),  SNRI (venlafaxine and duloxetine),  MAOI (Linezolid, Tranylcypromine, Phenelzine, Isocarboxazid, Selegiline—Selegiline is just MAO B—works more on DA),  TCA (amitriptyline, nortriptyline, imipramine, desipramine, clomipramine, doxepin, amoxapine; -iptyline or –ipramine),  Tramadol (weak opioid analgesic)  Meperidine (opioid w/ weak SRI activity)  Ondansetron (5-HT3 antiemetic),  Linezolid (antibiotic w/ weak MAOI),  Triptans (for migraines and cluster headaches)  Dextromethorphan (antitussive; antagonizes NMDA glutamate receptors--↑ cough threshold) Codeine analog. Has mild opioid effects when used in excess. Naloxone can be given for OD. Mild abuse potential.  St. Johns Wart  Bupropion (don't use w/in 2 weeks of MAOI)—also used for smoking cessation. ↑ NE and Da. ↑ seizure risk but no sexual side effects. |
| Hypertensive Crisis | MAOI + Tyramine ingestion (in food such as wine and cheese) |
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| Antimuscarnic | Atropine—antimuscarinic. Dry as bone, mad as a hatter, hot as a hare, red as a beet, blind as a bat.  TCA’s (-iptyline or –ipramine)  H1-blockers—used to treat asthma.  Neuroleptics—low potency typical antipsychotics (chlorpromazine, Thioridazine,); Block D2 receptors🡪 ↑ cAMP (D2 normally is a Gi) –they also have α1 blocker (hypotension) and antihistamine (sedation) effects |
| Disulfiram-like reactions | Metrondiazole—Forms free radical toxic metabolites in the bacterial cell that damage DNA. Used for anaerobes below the diaphragm and flagellated things. Giardia, Entamoeba, Trichomonas, Gardnerella, Bacteroides, C. diff, H pylori (in triple therapy). Also associated with metallic taste.  Some Cephalosporins  Procarbazine—alkylating agent 🡪 breaking of DNA strands.  1st generation Sulfonylureas—Tolbutamide, Chlorpropamide; Close ATP associated K-Channel in pancreatic β cell membrane 🡪 depolarization 🡪 triggering insulin release via ↑ Ca influx. Requires some islet function so only used in type 2. |
| Nephrotox/ototox | Aminoglycosides--↑ tox w/ cephalosporins. Inhibit formation of initiation complex and cause midreading of mRNA. Require O2 for uptake so only works on aerobes (Nocardia, Pseudomonas, Myobacterium, Bacillus). Use for severe gram – rods. Synergystic with β-lactam antibiotics.  Vancomycin—inhibits cell wall synthesis by binding D=ala-D-ala of gram + bacteria. C. diff (give it orally) and MRSA  Furosemide/loop diuretics—Inhibits cotransport system NKCC2 channel in TAL. Abolishes hypertonicity of medulla, preventing concentration of urine. ↓ luminal positivity in TAL🡪 ↑ excretion of Ca and Mg. STIMULATES PGE release (🡪 vasodilatory effect on afferent arteriole🡪 ↑ RBF and ↑ GFR). Inhibited by NSAIDs so don't take with a loop diuretic or it ↓ its diuretic response. Use: edematous states (CHF, cirrhosis, nephrotic syndrome, pulmonary edema), HTN, hypercalcemia. SE: Ototox, hypoK, Dehydration, sulfa allergy, nephritis, gout.  Cisplatin—Cross links DNA🡪 inhibition of replication. Prevent toxicity with AMIFOSTINE (free radical scavenger) and chloride diuresis. |
| Nephrotox | Amphotericin B— amphotericin B binds with ergosterol, a component of fungal cell membranes, forming a transmembrane channel that leads to monovalent ion (K+, Na+, H+ and Cl−) leakage, which is the primary effect leading to fungal cell death can ↓ EPO |
| Priapism | Thioridazine –low potency typical antipsychotics (chlorpromazine, Thioridazine,) –they also have α1 blocker (hypotension) and antihistamine (sedation) effects  Trazodone—atypical antidepressant (primarily inhibits serotonin reuptake). Used primarily for insomnia b/c high doses are needed for antidepressant effects. (TrazoBONE) |
| Weight Gain | Mirtazapine— Atypical antidepressant; give in patient with depression and insomnia—it is an α2 antag🡪 ↑ NE and 5-HT release; it also is potent 5-HT2 & 3 receptor antagonist; weight gain may be desirable in elderly or anorexic patients.)  Atypical Antipsychotics-- Inhibition of 5-HT2 (some D2) receptors; Especially Clozapine & Olanzapine  Glitazones/thiazolidinediones (Pioglitazone, Rosiglitazone)—antiDM type 2 drug. ↑ insulin sensitivity in peripheral tissues. Binds to PPAR- γ (↑ sensitivity via adipokine/adiponectin) nuclear transcription regulator. ↑ preadipocytes🡪 adipocytes. ↑ GLUT4 expression. |
| Peripheral Neuropathy | Vincristine/Vinblastine—alkaloid that bind to tubulin in M phase and block polymerization of MT so that mitotic spindle cannot form. Vincristine is neurotox (areflexia, peripheral neuritis, paralytic ileus). Vinblastine blasts BM (suppression)  Isoniazid--↓ synthesis of mycolic acid. Bacterial catalase-peroxidase needed to activatate. Only agent used solo for Tb. Give vit B6 (pyridoxine) to counter act peripheral neuropathy |
| Orange body fluids | Rifampin—Inhibits DNA-dep RNA pol. Used in Mycobacterium, Prophylaxis for N. menin and H. influ |
| Vision Problems | Digoxin— Causes blurry YELLOW vision. Direct inhibition of Na-K ATPase and Indirect inhibition of Ca/Na Exch🡪 ↑ Intracell Ca🡪 ↑ contractility and ↑ vagus nerve stimulation 🡪 ↓ HR. ECG-- ↑ PR, ↓ QT, ST scooping, T wave inversion, arrhythmia, AV block, hyperkalemia (poor prog), Cholinergic  Ethambutol—optic neuritis and red-green color blindness; ↓ carb polymerization of mycobacterium cell wall by blocking arabinosyltransferase |
| Sulfa drugs | Probenecid  Furosemide  Axetazolamide  Celecoxib  Thiazides  Sulfonamide antibiotics  Sulfasalazine  Sulonylureas |
| P450 INDUCERS | Modafinil—used to treat narcolepsy.  Barbituates—↑ GABAA action--↑ duration of Cl- channel opening. Induces P450. Acute Intermittent Porphyria—no photosensitivity just neuro sx (barbituates block ALA synthetase). Sedation, tolerance (cross tol w/ benzos and alcohol), dependence, CV and Respiratory depression.Withdrawal can mimick alcohol withdrawal. OD tx is supportive—alkalinization of urine helps too  St. Johns Wart  Phenytoin—Anticonvulsant. ↑ Na channel inactivation--↑ refractory period and ↓ AP duration. It is also a Class IB antiarrhythmic (1B is Best post MI). Induces P450; ↓ efficacy of oral contraceptives and warfarin. It is also highly protein bound so can displace other medications from plasma proteins. First line for tonic clonic seizures. Prophylaxis for status epilepticus. For IV use give fosphenytoin. Nystagmus, diplopia, ataxia, sedation, GINGIVAL HYPERPLASIA, MEGALOBLASTIC ANEMIA (↓ folate abs) Cosmetic effects (acne, hirsuitism, coarse facial hair), generalized lymphadenopathy, teratogenesis (fetal hydantoin sx—cleft lip and palate), Steven Johnson Sx., osteopenia, SLE-LIKE SYNDROME (anti-histone Abs), hyper glycemia, hepatotoxic  Rifampin—Inhibits DNA-dep RNA pol. Used in Mycobacterium, Prophylaxis for N. menin and H. influ  Griseofulvin—Interferes with MT function—disrupts mitosis. Deposits in keratin-containing tissues. Give systemically for dermatophytes.  Carbamazepine—↑ Na channel inactivation. Induces P450 (autoinduces its own metabolism)--↓ efficacy of oral contraceptives. First line for simple, complex and tonic clonic seizures. 1st line for trigeminal neuralgia too. It is also used to manic depression. Agranulocytosis, aplastic anemia, Steven Johnson Sx., Diplopia, ataxia, liver tox, teratogenesis (neural tube defect and craniofacial abnormalities), SIADH, hypernatremia,pancreatitis, nystagmus  Chronic alcohol use |
| P450 INHIBITORS | Macrolides (Erythromycin)  Amiodarone—Class III. K Channel Blocker. ↑ AP duration, ↑ ERP. ↑ QT interval.  Grapefruit Juice  Isoniazid--↓ synthesis of mycolic acid. Bacterial catalase-peroxidase needed to activatate. Only agent used solo for Tb. Give vit B6 (pyridoxine)  Cimetidine—H2 receptor antag🡪 ↓ H+ secretion by parietal cell in the stomach. Used for peptic ulcer, gastritis, and GERD. It also has antiandrogenic effects (prolactin release, gynecomastia, impotence, ↓ libido in males).; can cross BBB (confusion, dizziness, headaches) and can cross placenta. ↓ renal excretion of creatinine (ranitidine also does this)  Ritonavir—protease inhibitor for HIV  Acute alcohol abuse  Ciprofloxacin  Ketoconazole—inhibits testosterone synthesis. In fungi it inhibits ergosterol synthesis but inhibiting P450. Can cause liver dysfunction  Sulfonamides—PABA antimetabolites inhibit dihydropteroate synthase. SMX for UTI.  Gemifibrozil--↓ LDL, ↑ HDL, ↓↓ TG; Upregulate LPL via PPAR-α 🡪 ↑ TG clearance. Myositis, hepatotox, cholesteral gallstones (↑ hepatic chol synthesis)  Quinidine—Class 1A. Na Channel Blocker--↑ AP duration, ↑ ERP, ↑ QT (🡪 tordases de pointes). Both atrial and ventricular arrhythmias, esp reentrant and ectopic SVT and VT. |